Section 06 - 05

List of Contents

1 Removal and Installation of the Digitizer Units 1
1.1 General 1
1.2 Transport Unit 1
1.3 Erasure Unit 2
1.4 Power Unit 3
1.5 Removal of the Cassette Unit 4
1.6 Removal of the Scan Unit 9
1.7 Replacing the Laser 14
1.7.1 Replacement 14
1.7.2 Putting the new Laser in Operation 16
1.8 Replacing the Galvanometer 17
1.8.1 Replacement 17
1.8.2 Putting the new Galvo in Operation 19
1.8.3 Adjusting the Laser Beam 20
1.9 Replacing the Photomultiplier 22
1.9.1 Replacement 22
1.9.2 Putting the new Photomultiplier in Operation 24
1.10 Replacing the PIN DIODE PCB 25
1.10.1 Replacement of the Pin Diode PCB 26
1.10.2 Start up the Pin Diode 28
1.11 Replacing the Fan of the VME-Rack 28
1.12 Replacment of a Defective Harddisk 29
1.12.1 Replacement: 30
1.12.2 Start up the Harddisk 31

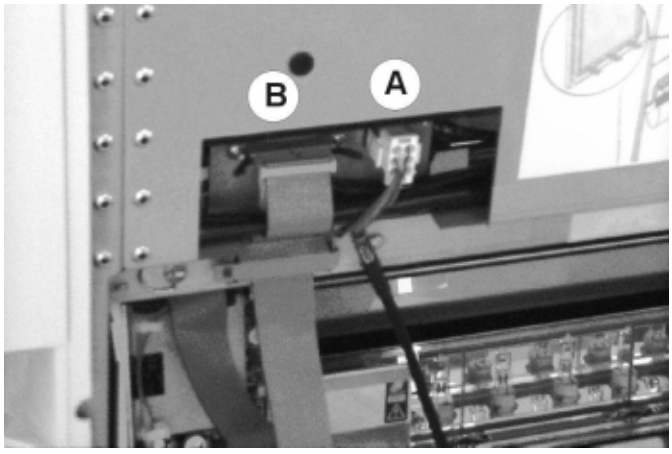
1 Removal and Installation of the Digitizer Units

1.1 General

ADC Solo makes use of parts employing machine specific parameters. These are Laser, Galvo, Photomultiplier, Pin-Dioden. The corresponding spare parts kits comprise the new spare part as well as a floppy disk containing necessary parameters/values/data. The floppy disks are assigned clearly to the spare part and can not be mistaken. After the new part has been installed the parameters are loaded from floppy drive via Service menu of the user terminal. Finally you are asked to renew the backup. Together with date and counter stamp is the serial number of the exchanged part automatically registered in the Infocounter file under the item „hardware modification history“.

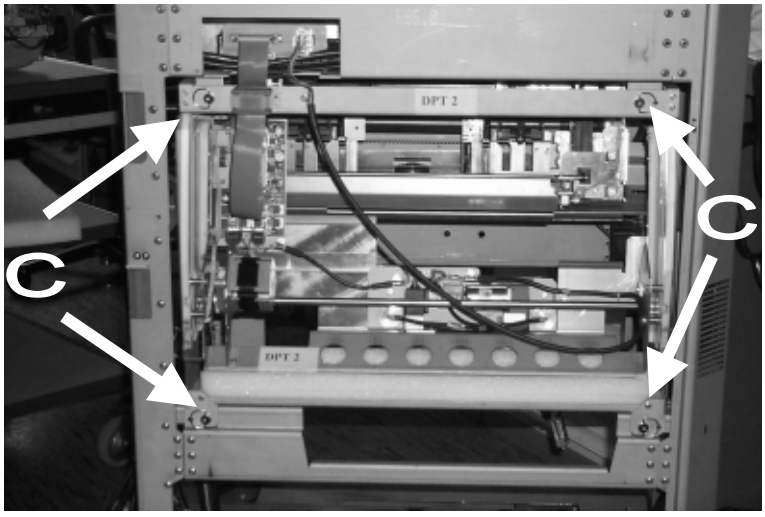
1.2 Transport Unit

Required tools:	none



515565ae.jpg

- unplug the machine from the mains.
- remove the right side panel.
- disconnect plug (A).
- disconnect cable (B).

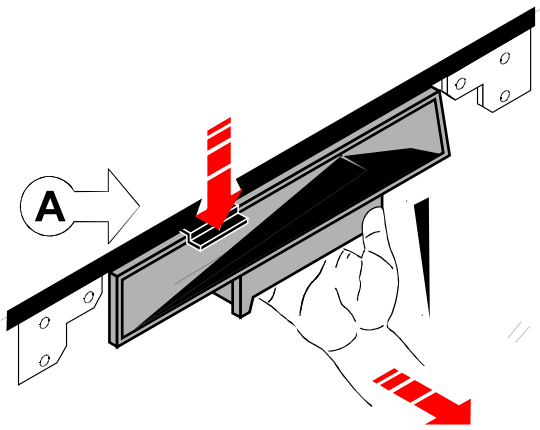


515565be.jpg

- untie four fasteners (C).
- remove transport unit and put it down.
- reinstallation in reverse order.

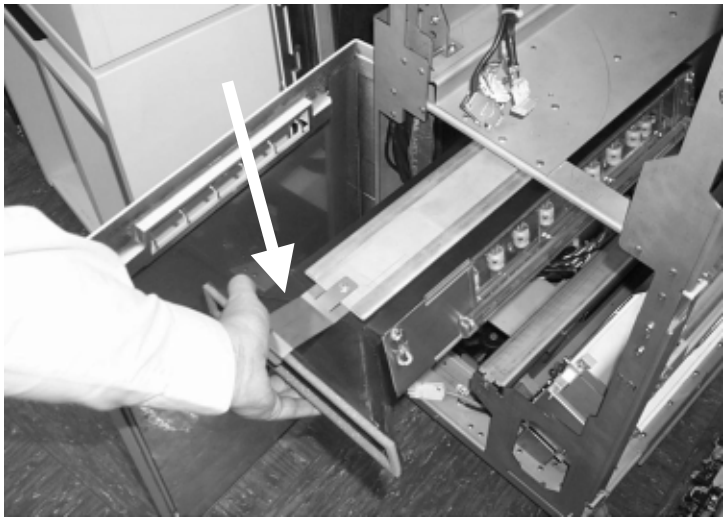
1.3 Erasure Unit

Required tools:	none



515565ce.cdr

- unplug the machine from the mains.
- open the front door.
- push lock(A) downwards.



515565ge.jpg

- pull the erasure unit cautiously out of the rail (arrow).

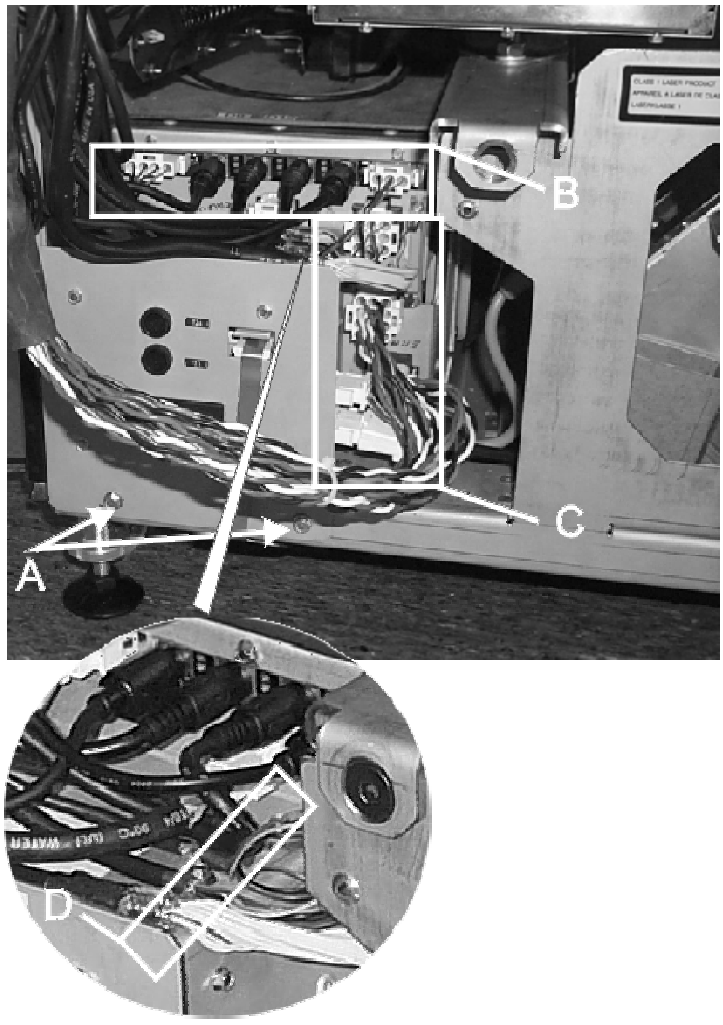
Note:

when replacing the erasure unit make sure that lock (Arrow) engages again.

- reinstallation in reverse order.

1.4 Power Unit

Required tools:	Philips screwdriver



515565he.jpg

- unplug the machine from the mains.
- open the front door.
- loosen two screws (A) from the frame.
- pull the power unit a little out of the machine.
- disconnect plugs (B) and (C)

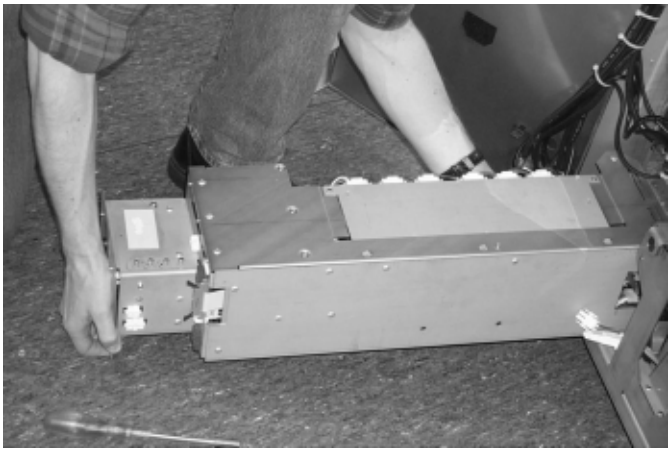
  You need not mark the cables before, because all plugs are different to each other.

Note:

unplug the black cables only by touching the plug.

Never pull at the cable itself!

- remove the four grounding clamps (D).



515565fe.jpg

- remove the power unit from the machine as shown beside.

- reeinstallation in reverse order.

1.5 Removal of the Cassette Unit

Required tools: Philips screwdriver

- It is necessary to remove the transport unit before

515565ie.jpg

- loosen the screws on the rear side (arrows).

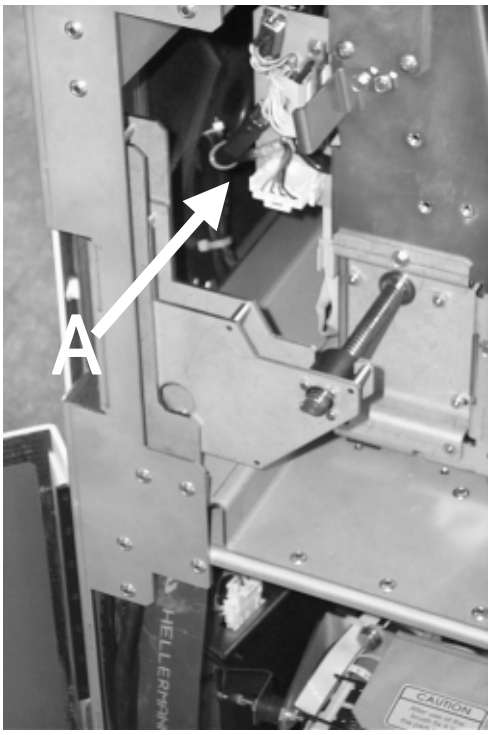
- push back the top cover.
- remove the side panels.

515565je.jpg

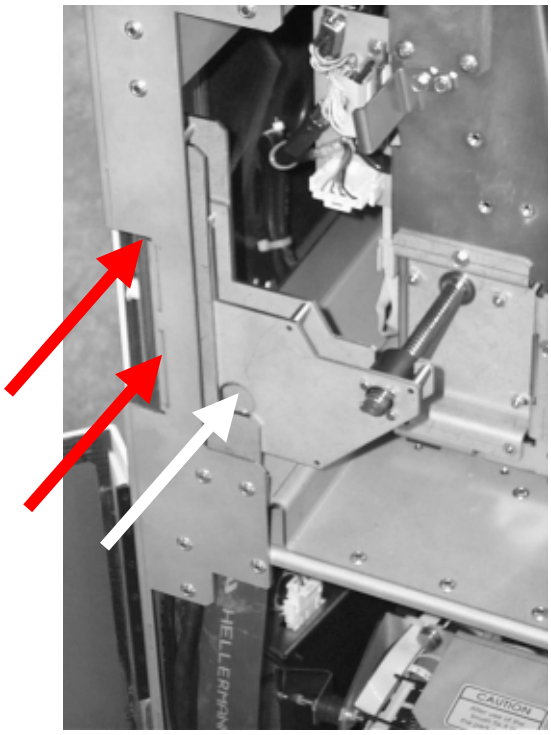
- open the front door (see hand and arrows).

515565ke.jpg

- loosen the three screws at both sides (arrows).
- remove the front cover.

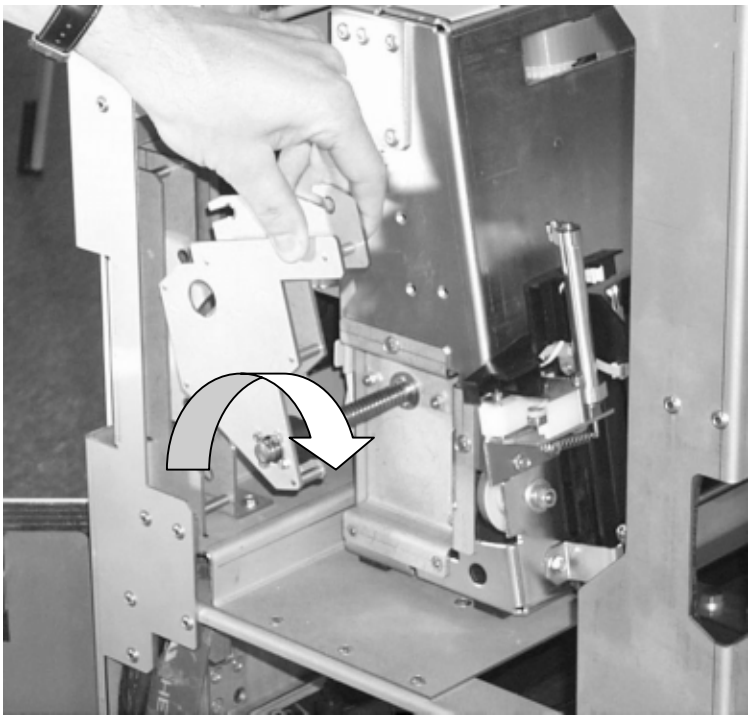


- disconnect the cables (A) of the casette unit.



515565le.jpg

- loosen the screws of the spindle carriage (arrows).



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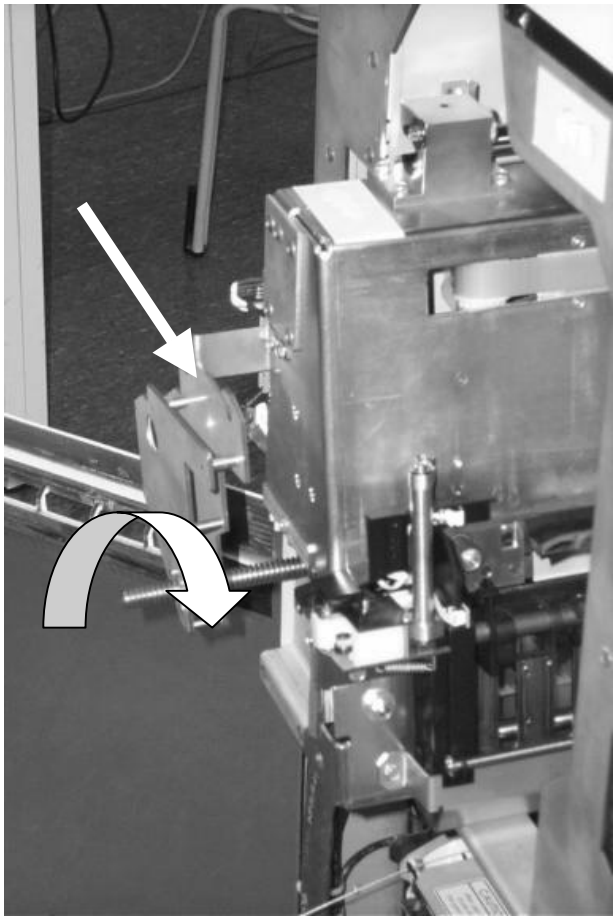
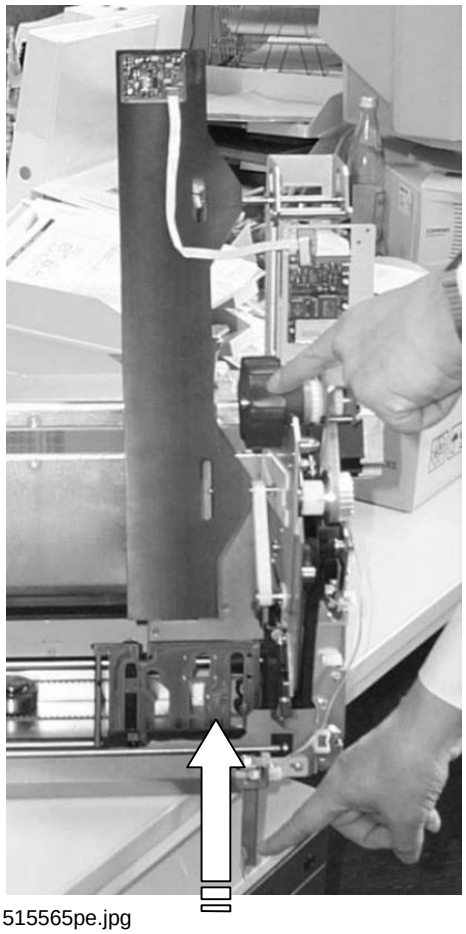
- swing the carriage (see arrow).



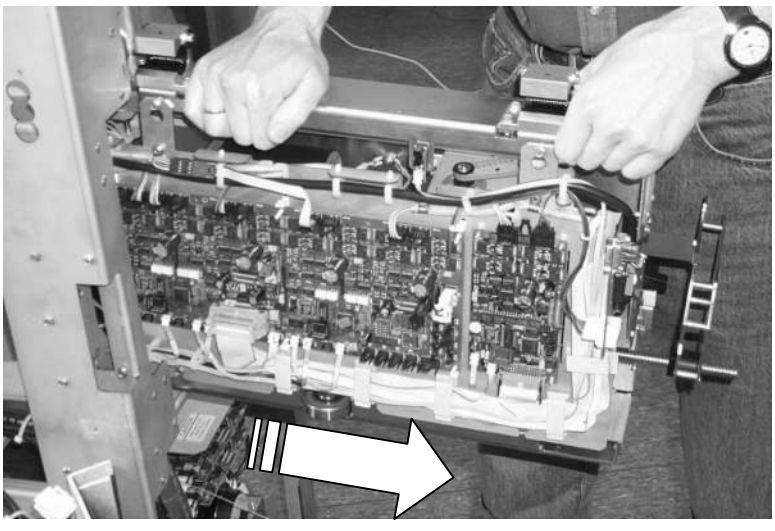
515565oe.jpg

- turn the carriage until you can clamp it to the casette frame.



515565pe.jpg

- turn up the robot by using the handle (see finger) to move up the lift (see arrow).



515565qe.jpg

- pull out the cassette unit cautiously and put it down

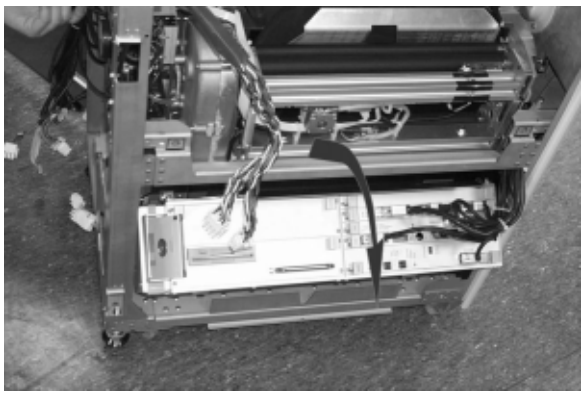
  (mind the position of the hands).

1.6 Removal of the Scan Unit

Required tools: Phillips screwdriver
13 mm socket wrench

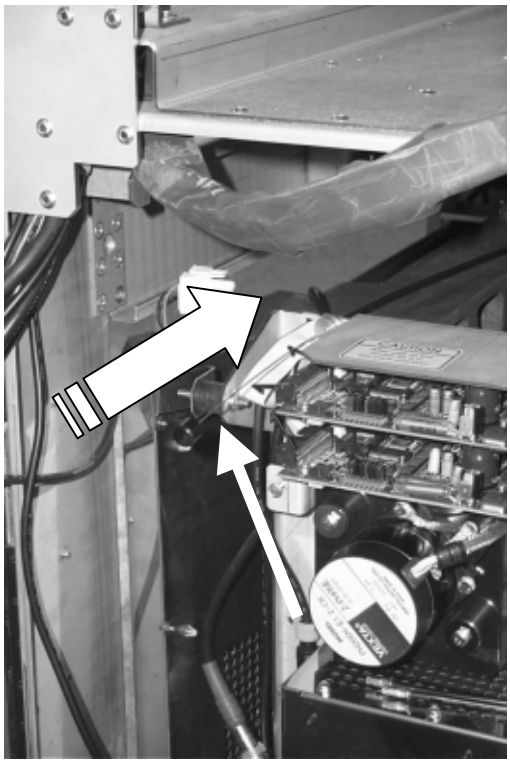
Preparations:

- open the front door
- remove both side panels
- remove the IP-transport unit
- remove the erasure unit

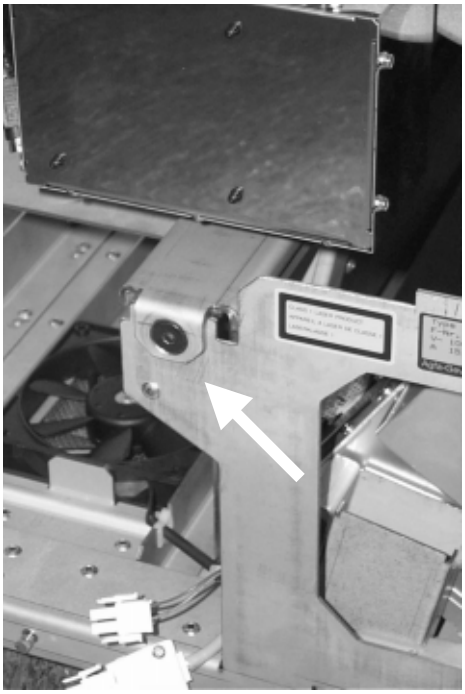


515565re.jpg

- tip over the rack

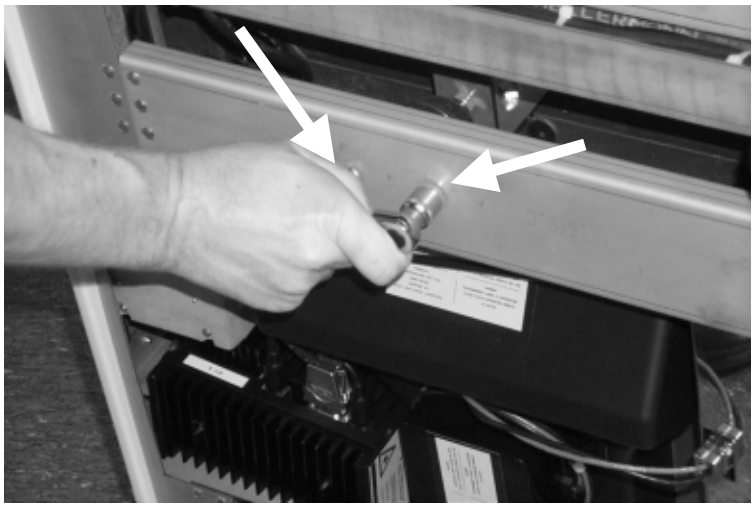


- push the scan brush inwards.



515565se.jpg

- loosen the allen screw (arrow)



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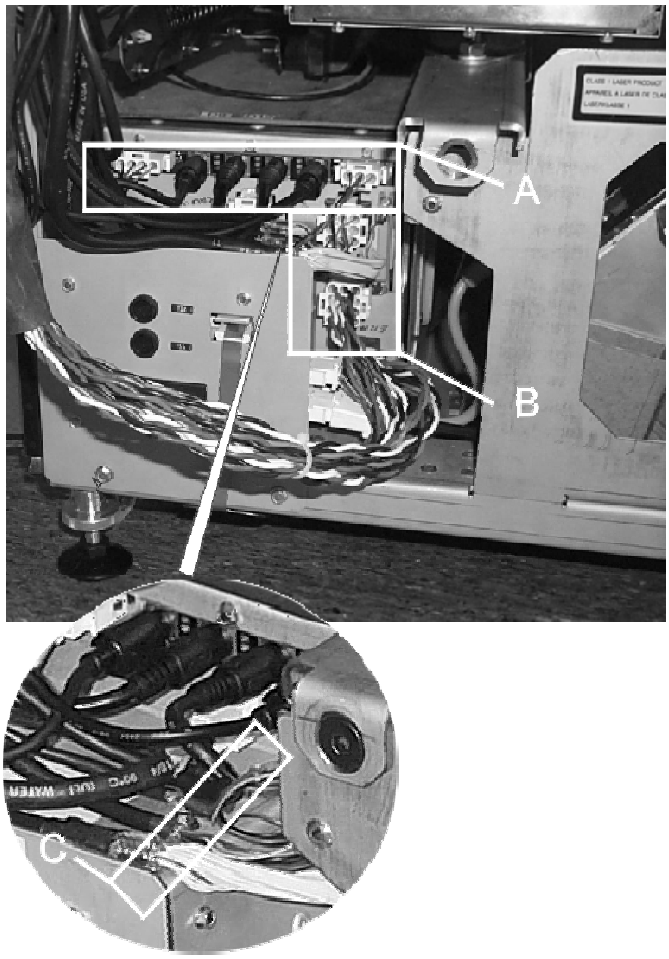
- loosen both screws (arrows).
- pull out the unit a bit



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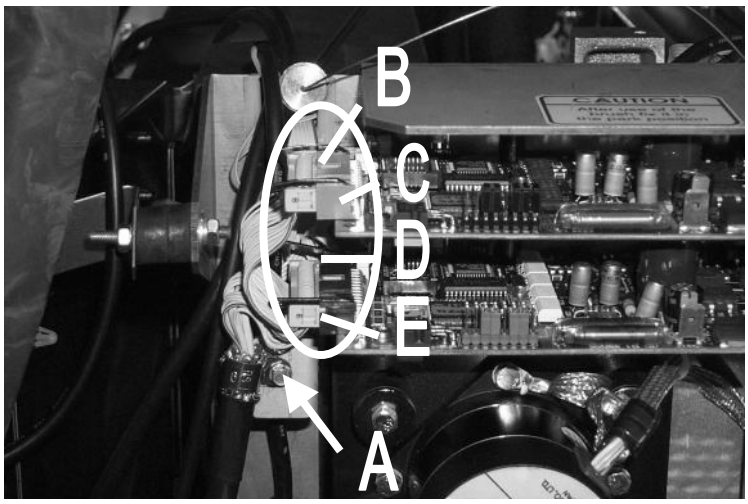
- disconnect the front plug connections(A).
- disconnect the plugs (B).

Attention:

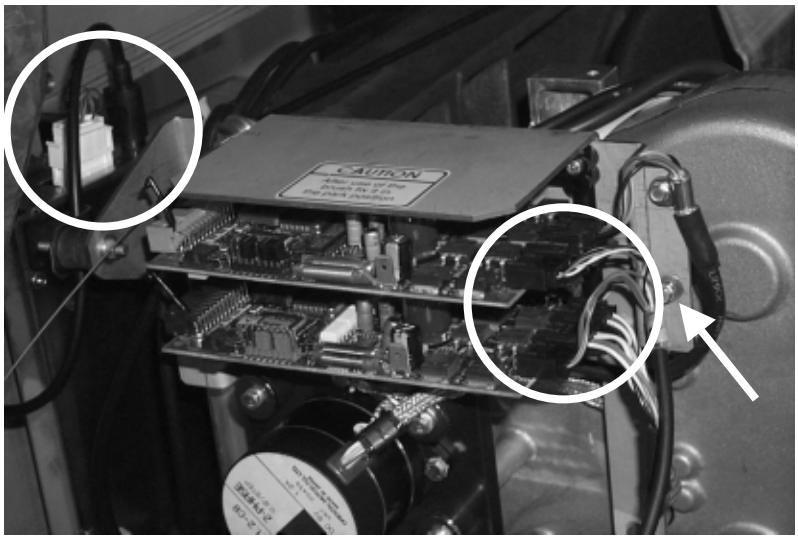
To remove the cable touch it only at the plug!

- Remove the four grounding clamps (C).



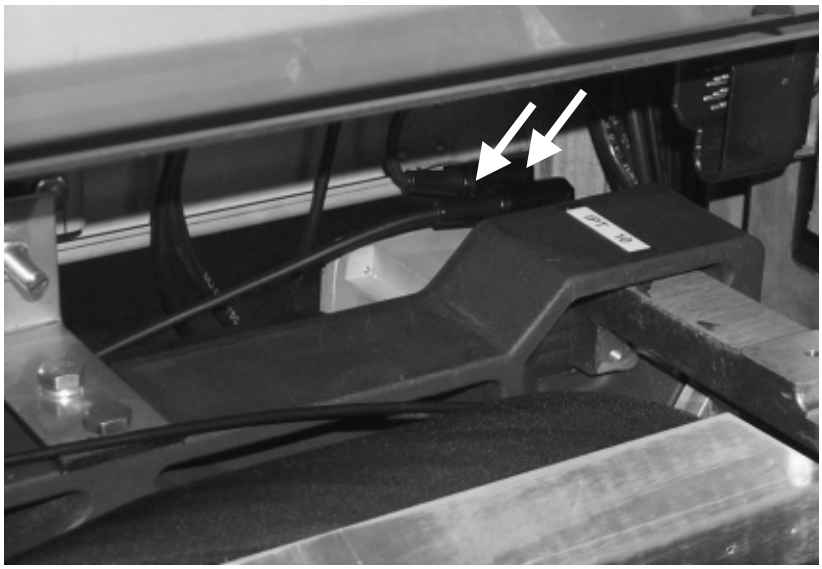
51556510.jpg

- remove grounding clamp (A).
- disconnect cables (B,C,D,E)



5155650e.jpg

- remove grounding clamp (arrow)
- disconnect the plugs (circles)



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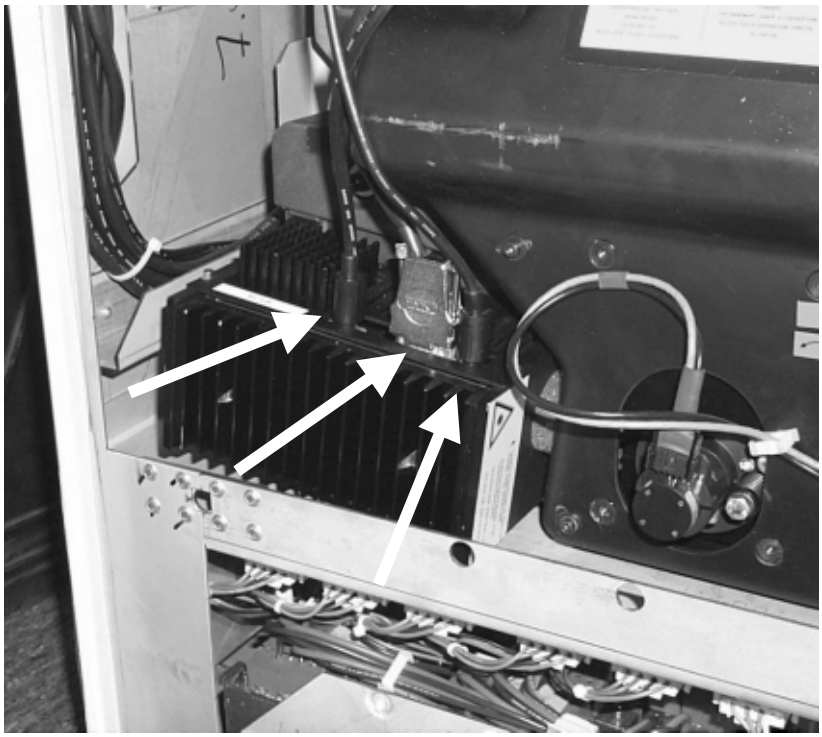
- disconnect two cables at photo multiplier (arrows).



515565ve.jpg

- disconnect three cables at laser box (arrows).

- Unlock the Photo multiplier with the bayonet socket and pull it out.
- pull out the unit completely.
- reinstallation in reverse order.

1.7 Replacing the Laser

Required tools:	allen key, 3mm socket wrench, 13 mm screwdriver

Scope of delivery

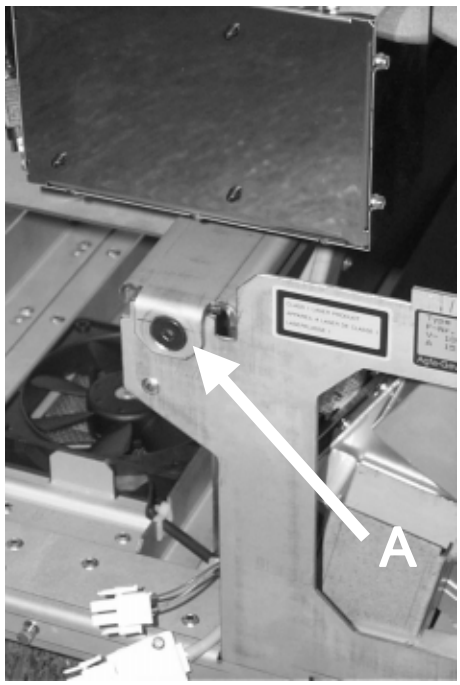
Laser, labeled with	Laser S/N: Power: Date: Warranty until: Digitizer SN:	S/N of the manufacturer Laser power on the image plane Date of the measurement Expiration date of Laser manufacturer's warranty To be completed by the engineer after installation

Floppy, labeled with	**Laser Floppy** S/N: Power Date: Digitizer SN:	 S/N of the manufacturer Laser power on the image plane Date of the measurement To be completed by the engineer after installation

1.7.1 Replacement

Preparations:

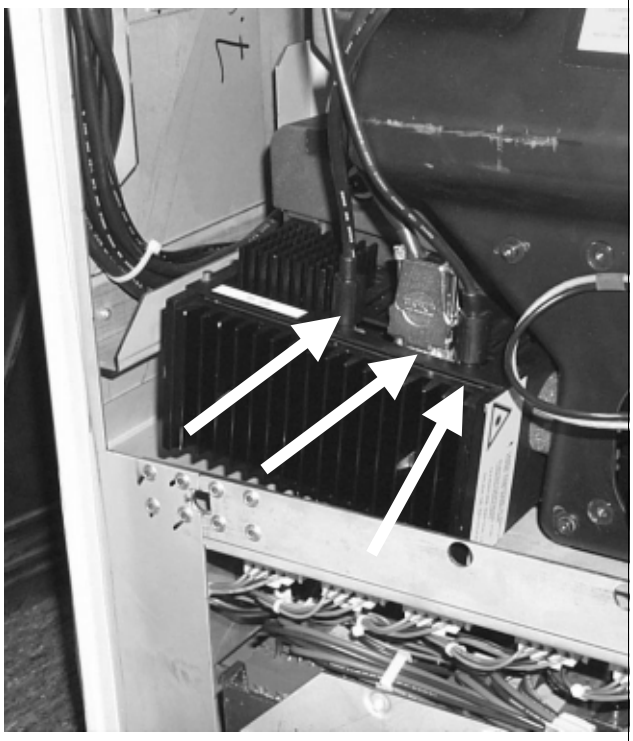
- open the front door
- remove both side panels
- remove the IP-transport unit
- remove the erasure unit



A

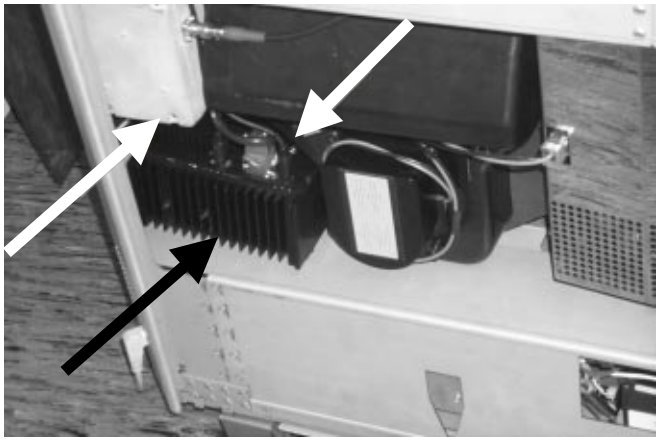
5155652e.jpg

- loosen the allen screw (A).
- pull out the scan unit a little bit.



515565ve.jpg

- disconnect three cables at the laser unit (arrows).



- unscrew three allen screws (arrows).
- pull out the laser unit.

- reinstallation in reverse order.

1.7.2 Putting the new Laser in Operation

- switch on the Digitizer
- install the laser power value of the new laser from the enclosed floppy disk via the Service Menu at the user terminal

  select `INSTALL from floppy`
  `Laser power factor`

  ☞ the system requests you:

  - to compare the S/N given on the laser label with the S/N stored on the floppy disk. After confirmation the parameters are loaded.

    the serial number of the exchange part is automatically entered in the infocounter file under "hardware Replacement history".
- update the backup
- remove the floppy

  Press **`Return`**
- Check the laser beam

  select `Checks`
  `check laser`
  `Laser beam position`

  The laser beam is spread to full scan width.

  The laser beam must be visible with the same light output on both fibers.

  If not, adjust the scan line with the Galvo adjustment screws, see page 20
- **Calibrate all formats,** see section 3
- Check the image quality with flatfield exposures, see section 3
- Update the backup to save the calibration data

  select `Save on floppy`
  `Machine specific data`

  Follow the on-line instructions
- Enter the S/N number of the Digitizer on the label of the laser floppy disk.

1.8 Replacing the Galvanometer

Required tools: allen key, 3mm

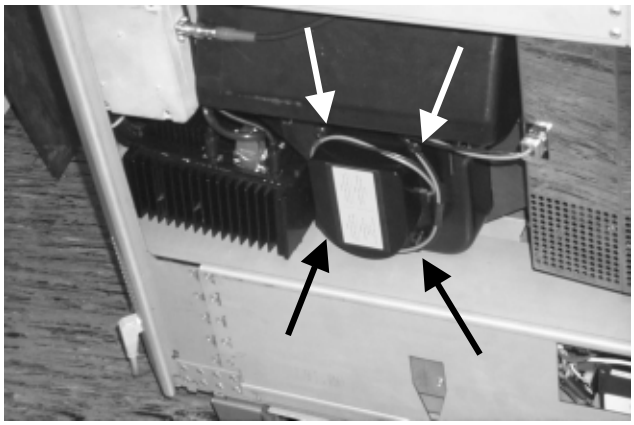
Scope of delivery

Preadjusted Galvo with mounting bracket, labeled with	S/N: Date: Warranty until: Digitizer SN:	S/N of the manufacturer Date when the values were determined Expiration date of manufacturer's warranty To be completed by the engineer after installation
Preadjusted Galvo driver board, labeled with	S/N:	S/N of the manufacturer
Floppy with Galvo specific data (sweep curve for each CAL format, Galvo offsets, ke_distance, labeled with:	**Galvo floppy** S/N: Date: Digitizer SN:	S/N of the manufacturer Date when the values were determined To be completed by the engineer after installation

1.8.1 Replacement

Preparations:

- Switch off the Digitizer
- Disconnect the mains cable
- Open the left side panel



515565.xe.jpg

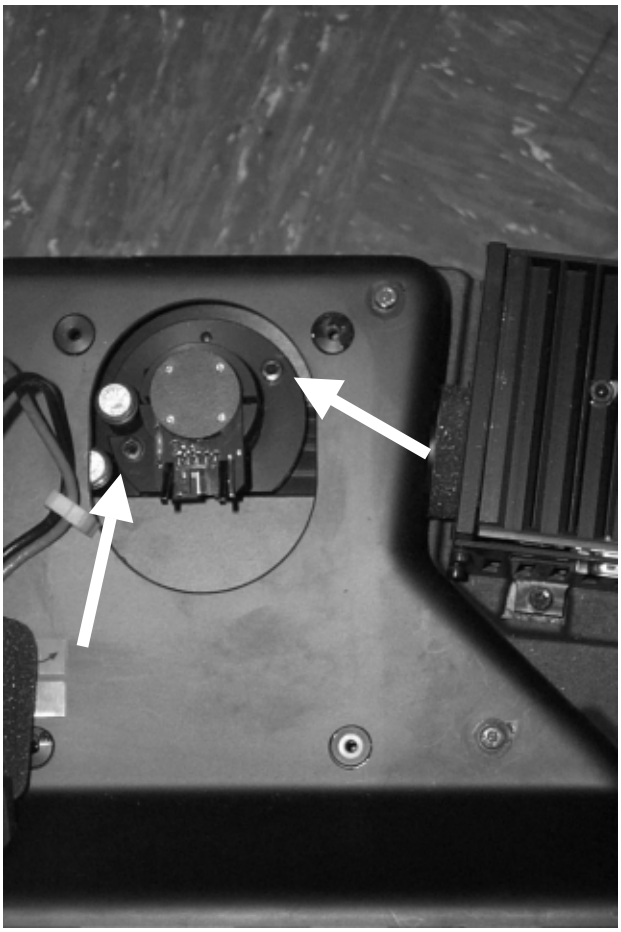
- loosen the four screws (arrows)

Attention:

Do not loosen the screws completely!

(plastic washers prevent screws from falling into the interior of the machine).

- remove the dust cap



515565ye.jpg

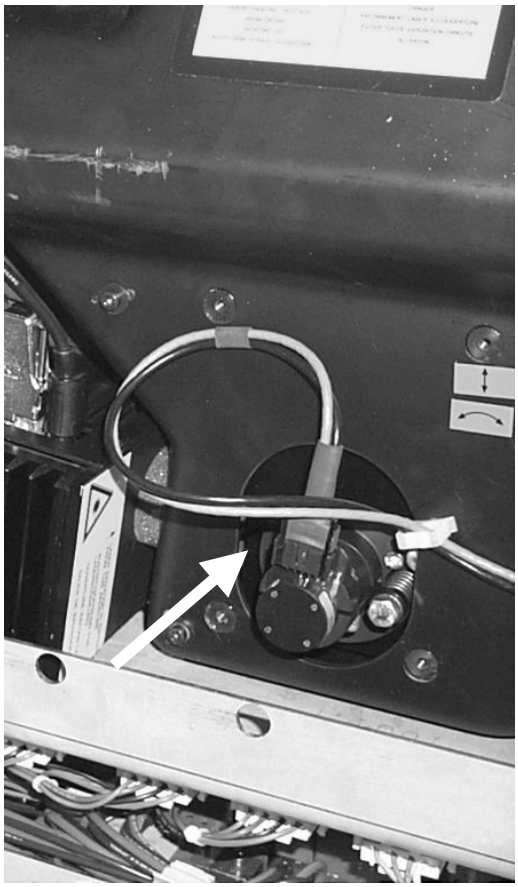
- disconnect the galvanometer.
- loose the two allen screws (arrows).

Note:

Do only loose the allen screws!

- lift the galvanometer carefully.
- Write the S/N of the Digitizer on the label of the new galvo.
- mount the new galvo.

Check the Galvo for proper seat before fixing with the screws! The Galvo easily jams. If the Galvo is not seated well, you will have problems to adjust it afterwards.



- connect the galvo (arrow)

Note:

Incorrect connection results in a damaged galvo!

- connect the mains cable

1.8.2 Putting the new Galvo in Operation

- switch on the Digitizer
- install the Galvo parameters from the enclosed floppy disk via the Service Menu at the user terminal

  Select `INSTALL from floppy`
  `Galvanometer curve`

  ☞ the system requests:

  - to compare the S/N on the Galvo label and the S/N stored on the floppy disk. After confirmation the parameters are loaded.

    the serial number of the exchange part is automatically entered in the infocounter file under "hardware replacement history" together with date and counter stamp.

- update the backup

- check the laser beam

  select `checks`

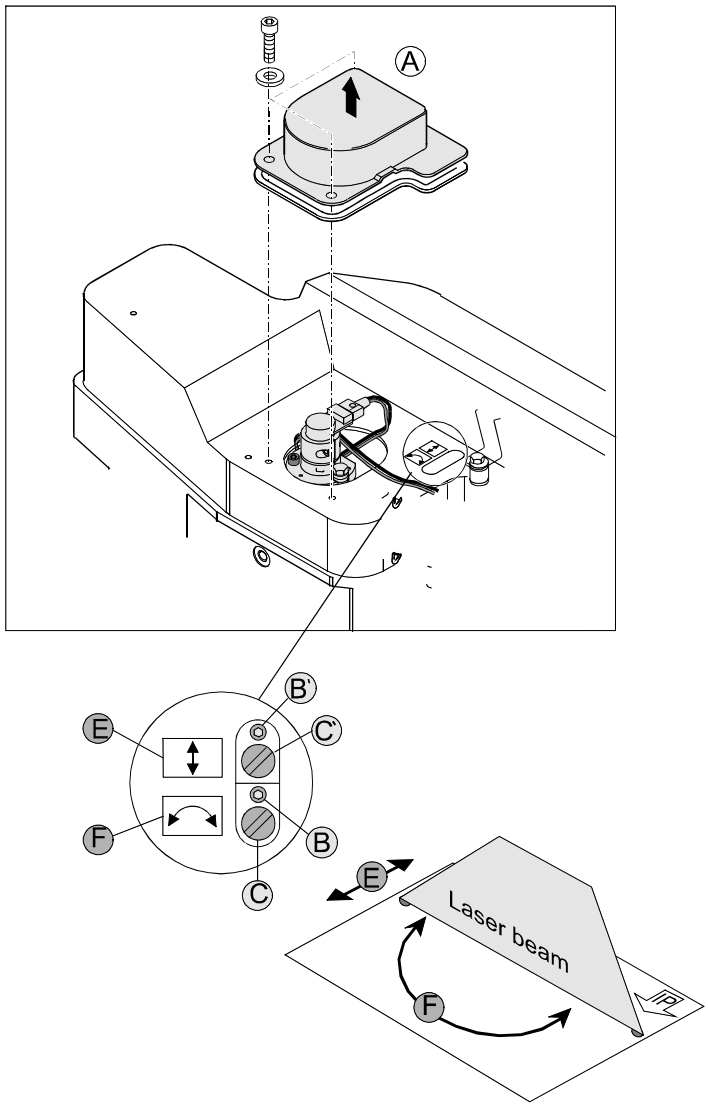
  `check laser`

  `Laser beam position`

  The laser beam is spread to full scan width.

  The laser beam must be visible with the same light output on both fibers.

  If the laser beam is not correct, adjust the scan line with the galvo adjustment screws (see figure below)



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1.8.3 Adjusting the Laser Beam

B Unscrew the dust cap (allen srew 2,5 mm)

C/C' Loosen the screw slightly with an allen screw 2 mm

D/D': Adjust the Laser beam with the screw

Tighten the screws C or C' again

- Mount the dust cap and close the unit
- **Calibrate all formats**
- Check the image quality with test sheet and flatfield exposures
- Update the backup to save the calibration data

  Select `Save on floppy`
  `Machine specific data`

  Follow the on-line instructions
- Enter the S/N number of the Digitizer on the label of the Galvo floppy disk.

1.9 Replacing the Photomultiplier

Required tools: allen key, 3mm
socket wrench,13mm

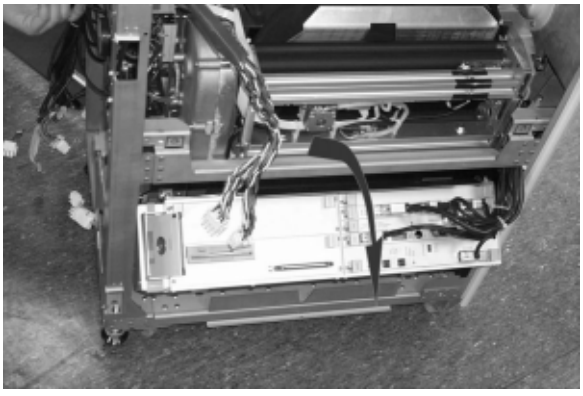
Scope of delivery

Photomultiplier tube with I/V converter, labeled with	S/N: mfa: mfb: Date: Warranty until: Digitizer SN:	S/N of the manufacturer determined mfa value determined mfb value Date when the values were determined Expiration date of the manufacturer's warranty To be entered by the engineer after installation

Floppy disk with mfa, mfb factor, labeled with:	**PMT - Floppy** S/N: mfa: mfb: Date: Digitizer SN:	 S/N of the manufacturer determined mfa value determined mfb value Date when the values were determined To be entered by the engineer after installation

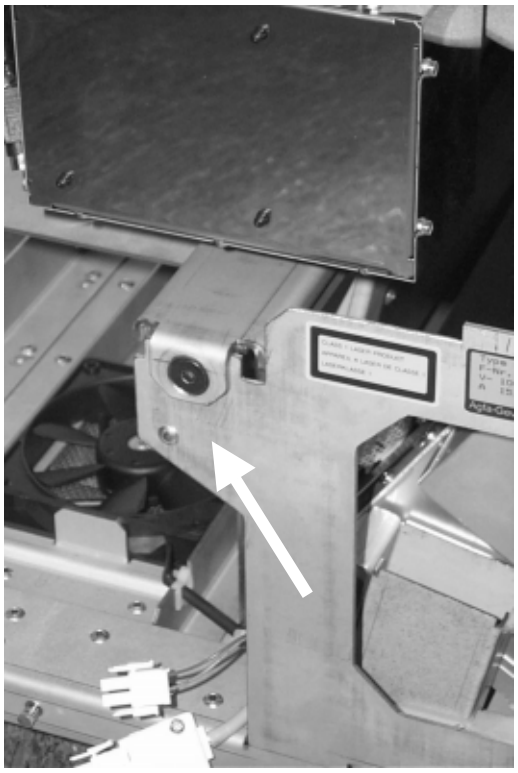
1.9.1 Replacement

- Switch off the Digitizer
- Disconnect the mains cable
- Remove both side panels
- Remove the erasure unit
- Remove the IP-transport unit



515565re.jpg

- tip over the rack

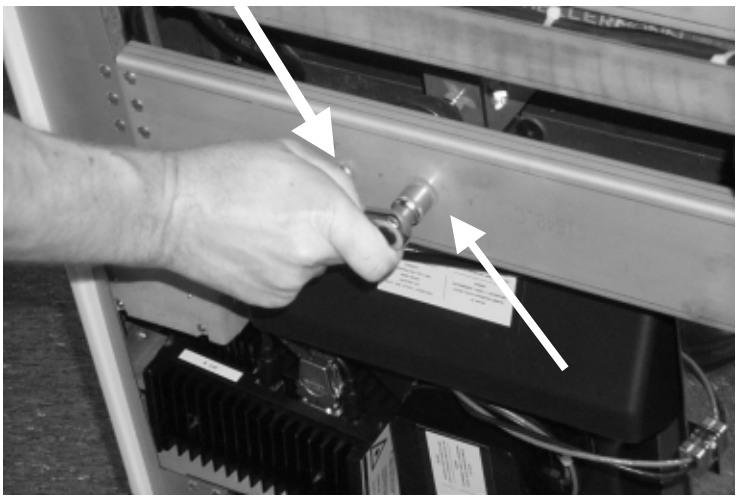


5155652e.jpg

- loose the allen screw (arrow)

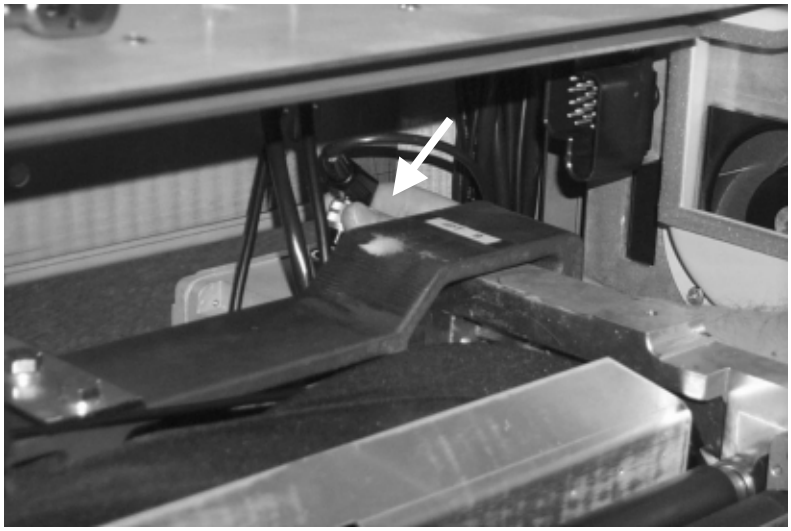
Note:

Do not disconnect any cables!



- loose both screws (8 mm)

- pull out the unit a few centimeters



515565ue.jpg

- disconnect cables at photo multiplier (arrow)
- unlock the photomultiplier with bayonet socket by turning and remove it
- installation in reverse order

1.9.2 Putting the new Photomultiplier in Operation

- switch on the Digitizer
- install the mfa / mfb parameters from the enclosed floppy disk via the Service Menu at the user terminal

  Select `INSTALL from floppy`
  `Mfa/mfb`

  The system requests:

  - To compare the S/N on the photomultiplier and the S/N stored on the floppy disk. After confirmation the parameters are loaded.

    The serial number of the exchange part is automatically entered in the infocounter file under "HW Replacement history" together with date and counter stamp.

  - Update the backup
- **calibrate all formats**
- check the image quality with test sheet and flatfield exposures
- update the backup to save the calibration data

  Select `Save on floppy`
  `Machine specific data`

  Follow the on-line instructions

  Enter the S/N number of the Digitizer on the label of the photomultiplier floppy disk.

1.10 Replacing the PIN DIODE PCB

Required tools: socket wrench 5,5mm

open end spanner 13mm

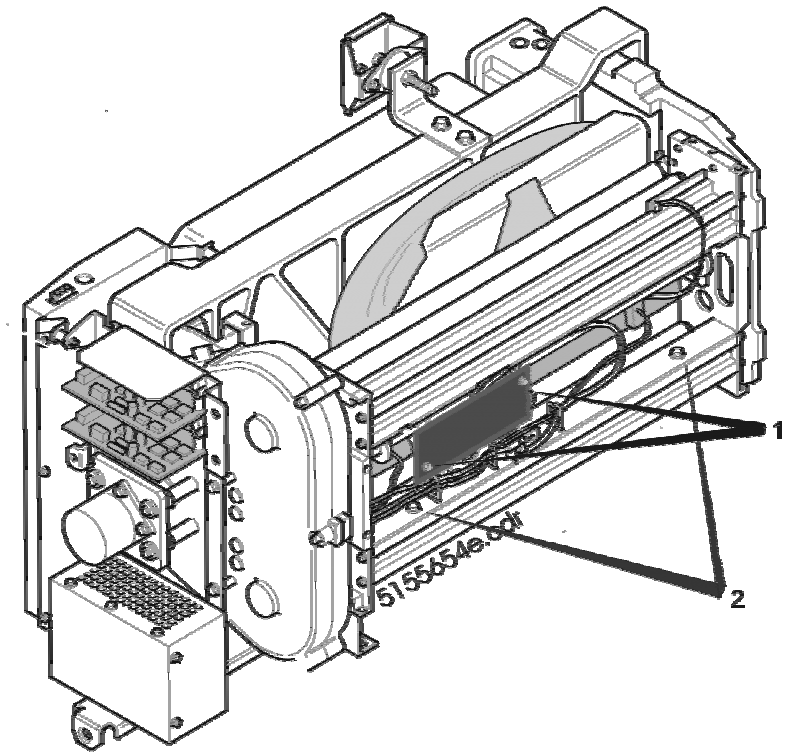
Scope of delivery

Pin diode PCB:	S/N: PD-Factor: Date: Digitizer SN:	Clearly assigned identification number Determined pin diode factor Date when the values were determined To be completed by the engineer after installation

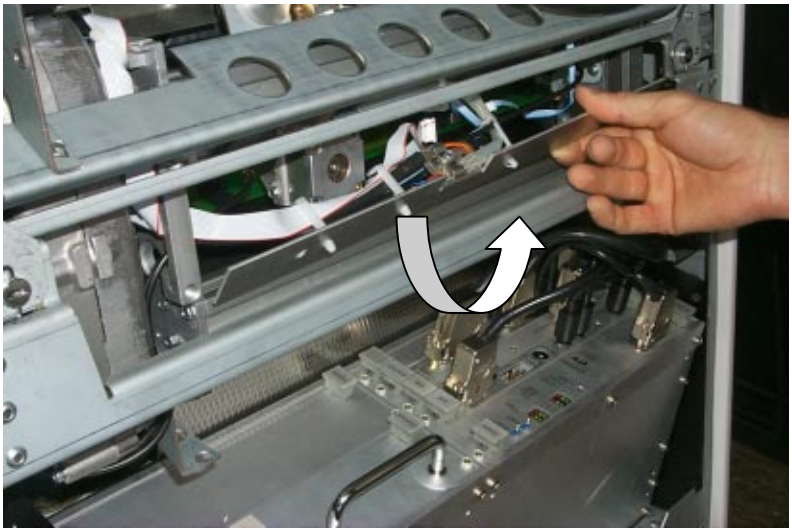
Floppy disk with PD factor labeled with:	**Pindiode floppy** S/N: PD-Factor: Date: Digitizer SN:	Clearly assigned identification number Determined pin diode factor Date when the values were determined To be completed by the engineer after installation

1.10.1 Replacement of the Pin Diode PCB

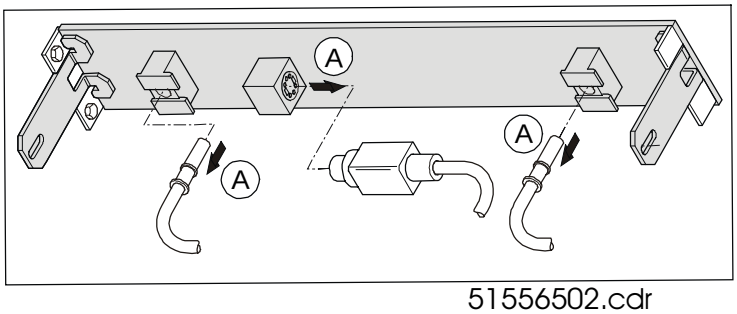
- switch off the Digitizer
- remove the right side panel



- unmount the plate (two screws, 1)
- unscrew both screws (2) and...

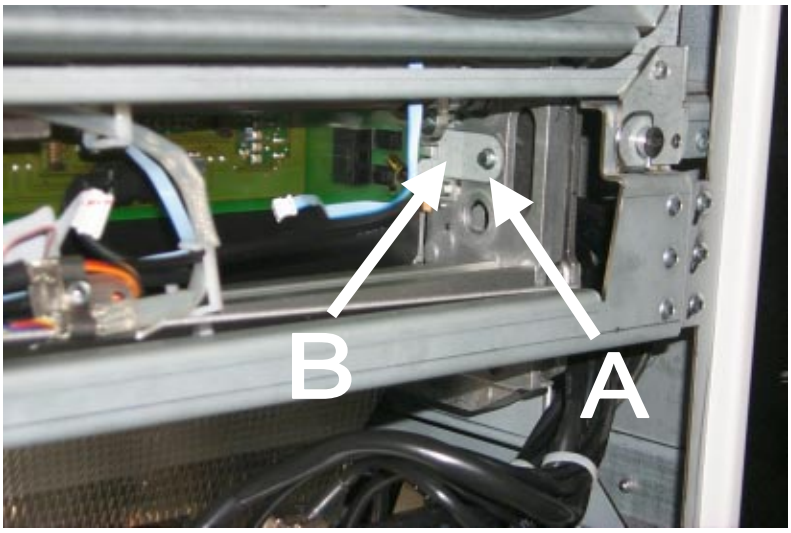


- ....turn out the plate

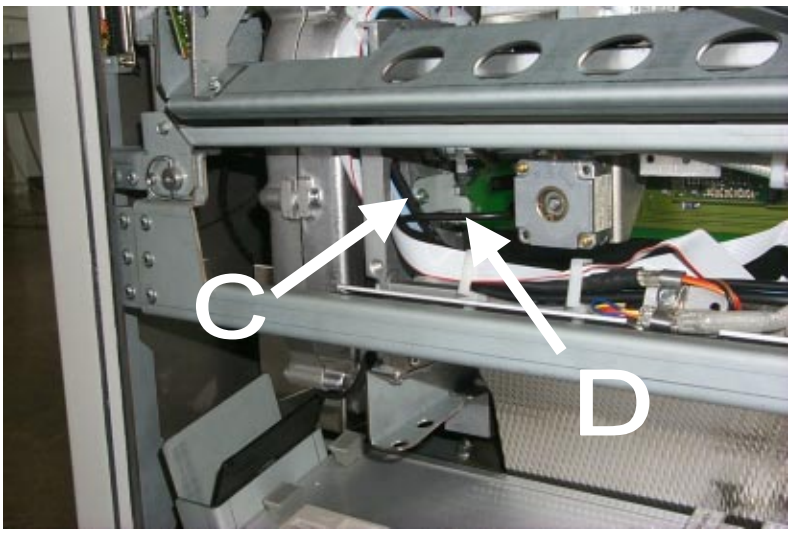


51556502.cdr

- disconnect cables (A)



- loosen the screw (A)
- dismount the metal lug (B)



- loosen the screw (C)
- dismount the metal lug (D)...
- ..and turn out the PCB-board

- reinstallation in reverse order

1.10.2 Start up the Pin Diode

- install the PD factor from the enclosed floppy disk via the Service Menu at the user terminal

  Select `INSTALL from floppy`
  `Pin-diode factor`

Follow the on-line instructions:

- check the Laser beam

  select `Checks`
  `Laser beam position`

  The Laser beam is spread to full scan width.

The Laser beam must be visible with the same light output on both fibers.
If not, adjust the scan line with the Galvo, see page 17

- check the image quality with test sheet and flatfield exposures.
- update the backup

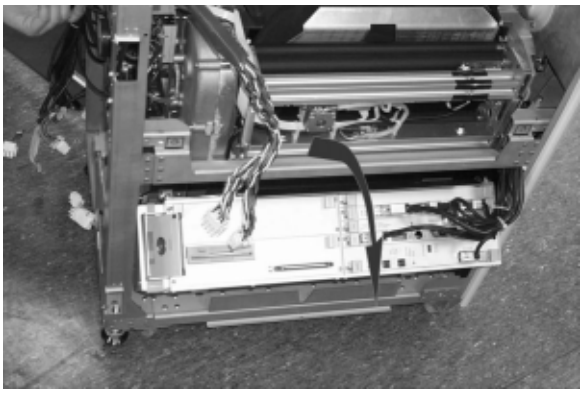
Follow the on-line instructions:

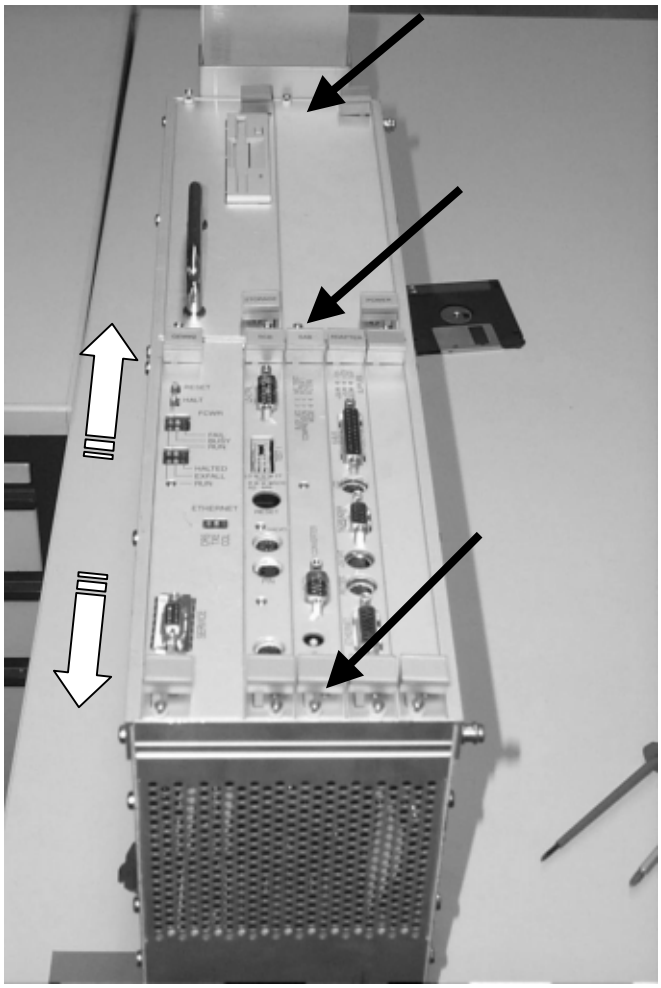
- Write the S/N number of the Digitizer on the label of the pin diode floppy disk.

1.11 Replacing the Fan of the VME-Rack

Note:
When the fan of the VME-Rack is defective you have to change the complete VME frame:

- Switch off the unit
- Unplug the mains cable
- Remove the side panel

	• Tip over the VME rack • Unplug all cables at the front of the VME rack • Unplug the power cable at the rear side of the rack • Pull out the VME rack



- Loosen the screws of all boards
- For lifting the boards out of the frame push both handles of the boards to the outside (see white arrows)

Note:

Do not remove the power supply of the VME rack

- Reinstallation in reverse order

1.12 Replace of a defective harddisk

Required tools:

- Philips screw driver

Also required

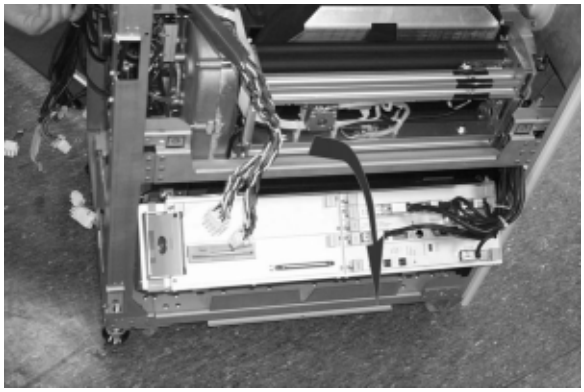
- 1 Boot floppy and 3 SW - floppies (enclosure of every digitizer).
  ☞ The disks are labeled with:
  SOLXXXX_Y_Z (XXXX=Software version, Y=disk no., X=number of all disks)

Additional we recommand:

- Service - PC. Alternative you can use also the PC of the Preview- or PRID-Station.
- Interface cable (RS232) Digitizer -⟹ Service PC or ID-Station

1.12.1 Replacement:

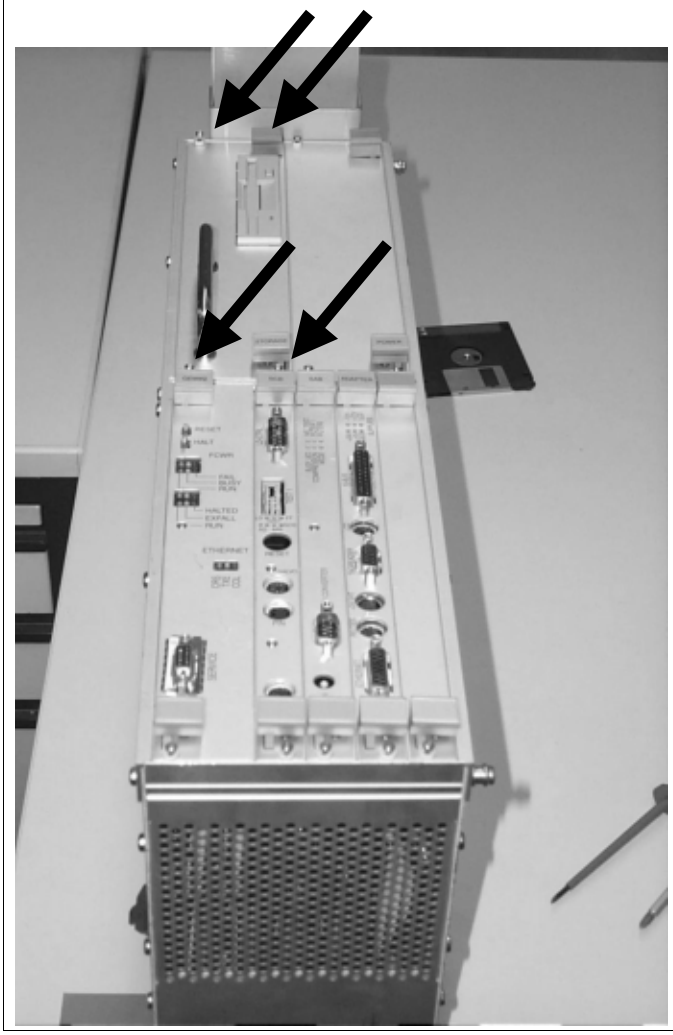
- Switch off the unit
- Unplug the mains cable
- Remove the side panel



- Tip over the VME rack
- Unplug the power cable at the rear side of the rack

Note:

It is not necessary to remove the complete VME-rack!



1.

- loosen four screws at the storage board of the VME-rack (arrows)
- pull out the storage board and...
- ..replace the defective harddisk

1.12.2 Start up the harddisk

- Disconnect the digitizer from the network
- Connect terminal (PC) to service port and start a terminal program
- Insert the Boot floppy (Disk1 of 4) into the diskdrive of the digitizer
- Switch on the digitizer
- Wait until you get the final message on the terminal program or wait until control LED of the floppy drive is off.
- Insert the second floppy (Disk2 of 4) into the diskdrive of the digitizer
- Reset the digitizer with the reset button at the gemini board
- Wait until you get the final message on the terminal program or wait until control LED of the floppy drive is off.
- repeat the last 3 steps for Disk 3

Remark:
If the software asks you to refresh the back up, do not refresh!
⇒ press the cancel button

- repeat the last 3 steps for Disk 4.
- Restore machine specific data (controlled via key-pad)
  select `Install from floppy`
  `Machine specific data`

Follow the online instructions

- Reload the cpf-file

Select `Configure`
`Local network ID`

Follow the online instructions

- Reconnect the network